

Claims

- [c1] A compressed seal expansion joint comprising:
at least one generally cylindrical resilient and elastic seal disposed in an annular packing chamber defined between
telescopically arranged outer and inner pipe members, and
an outer circumferentially tensioned band and clamp positioned and selected to produce a compressive force to radially deflect said outer pipe member and thereby compress and deflect said generally cylindrical resilient and elastic seal so that said outer and inner pipe members and said generally cylindrical resilient and elastic seal create and maintain a bearing and friction-loaded sealed relationship for fluid flow at varying temperatures between adjacent ends of two conduits during axial sliding and rotational relative movement of said outer and inner pipe members.
- [c2] The compressed seal expansion joint of claim 1 Figures whereby said compressed seal expansion joint possesses more than one generally cylindrical resilient and elastic seal and outer circumferentially tensioned band and clamp.
- [c3] The compressed seal expansion joint of claim 1 whereby said annular packing chamber is further volume constrained and circumscribed for each said generally cylindrical resilient and elastic seal by at least two cylindrical guide rings attached to one of said outer and inner pipe members and extended radially between said outer and inner pipe members [and in close proximity to said cylindrical guide rings and] selected to provide a fixed initial volume for ^{each} said generally cylindrical resilient and elastic seal.
- [c4] The compressed seal expansion joint of claim 3 whereby said compressive force is further selected to produce static compressive frictional forces on the contact surfaces of each said generally cylindrical resilient and elastic seal, said cylindrical guide rings, and said outer and inner pipe members to resist and prevent relative movement due to axial internal pressure, vibration, and transient operational loads.
- [c5] The compressed seal expansion joint of claim 1 whereby said outer and inner pipe members are composed of polymer matrix composites.

- [c6] The compressed seal expansion joint of claim 1 whereby said fluid is a cryogenic fluid.
- [c7] The compressed seal expansion joint of claim 1 whereby said fluid is a rocket engine fuel reactant.
- [c8] The compressed seal expansion joint of claim 1 whereby said outer circumferentially tensioned band and clamp is selected to provide means for manual and power driven adjustment.